Journal of
THERMAL BIOLOGY

Editors:
K. BOWLER (U.K.) J. E. HEATH (U.S.A.)

VOLUME CONTENTS, AUTHOR AND SUBJECT INDEXES

Volume 13 (1988)

PERGAMON PRESS
Oxford · New York · Beijing · Frankfurt
São Paulo · Sydney · Tokyo · Toronto

Journal of Thermal Biology

Editors

PROFESSOR K. BOWLER: *Department of Biological Sciences, University of Durham Durham DH1 3LE, England*

PROFESSOR J. E. HEATH: *Department of Physiology and Biophysics, University of Illinois Urbana, IL 61801, U.S.A.*

Members of the Editorial Board

J. BLIGH (*Cambridge*)
R. W. CASTENHOLZ (*Eugene*)
B. M. FREEMAN (*Houghton*)
C. GALE (*Washington*)
J. N. R. GRAINGER (*Dublin*)
M. IRIKI (*Yamanashi*)
D. JANKOWSKY (*Kiel*)
K. Y. H. LAGERSPETZ (*Turku*)
A. MALAN (*Strasbourg*)
C. L. PROSSER (*Urbana*)
J. K. RAISON (*Macquarie*)
A. H. ROSE (*Bath*)
J. STOLWIJK (*Yale*)

Aims and Scope

The journal will publish results of work in which the central theme is the mechanisms by which temperature affects living organisms. It will be wide in scope and include studies at the biochemical and physiological level and also at the level of the organism. The following are examples of the subject areas to be covered:

- Studies on the mechanisms involved in acclimation and acclimatization to temperature in plants and animals, including the phenomena of hibernation, dormancy, aestivation and diapause.
- The mechanisms of cellular heat and cold injury, and of the resistance of organisms to extremes of temperature.
- Effects of temperature on growth and development, ageing and life-span.
- Effects of temperature on micro-organisms.
- Behavioural and physiological regulation of body temperature.
- Medical applications of hypo- and hyperthermy, excluding descriptive clinical studies and case-histories.
- Review articles.

Publishing Office
Journals Production Unit, Pergamon Press plc, Hennock Road, Marsh Barton, Exeter, Devon EX2 8NE, England (*Tel.* Exeter (0392) 51558; *Telex* 42749).

Subscription and Advertising Offices
North America: Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, NY 10523, U.S.A.
Rest of the World: Pergamon Press plc, Headington Hill Hall, Oxford OX3 0BW, England (*Tel.* Oxford (0865) 64881).

Subscription Rates
Annual institutional subscription rate (1989) DM 355.00; 2-year institutional rate (1989/90) DM 674.50; personal subscription rate for those whose library subscribes at the regular rate (1989) DM 139.00. Prices are subject to amendment without notice.

Microform Subscriptions and Back Issues
Back issues of all previously published volumes are available direct from Pergamon Press. Back issues of Pergamon journals in microform can be obtained from: UMI, 300 North Zeeb Road, Ann Arbor, MI 48106, U.S.A.

Published quarterly.

Copyright © 1989 Pergamon Press plc

It is a condition of publication that manuscripts submitted to this journal have not been published and will not be simultaneously submitted or published elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. However, assignment of copyright is not required from authors who work for organizations which do not permit such assignment. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform or any other reproductions of similar nature and translations. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, mechanical photocopying, recording or otherwise, without permission in writing from the copyright holder.

Photocopying information for users in the U.S.A. The Item-fee Code for this publication indicates that authorization to photocopy items for internal or personal use is granted by the copyright holder for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service provided the stated fee for copying, beyond that permitted by Section 107 or 108 of the United States Copyright Law, is paid. The appropriate remittance of $3.00 per copy per article is paid directly to the Copyright Clearance Center Inc., 21 Congress Street, Salem, MA 01970.

Permission for other use. The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works or for resale. Specific written permission must be obtained from the publisher for such copying.

The Item-fee Code for this publication is: 0306-4565/89 $3.00 + 0.00

VOLUME CONTENTS

VOLUME 13, 1988

NUMBER 1

J. M. F. Verhagen, J. J. M. Michels and W. G. P. Schouten	1	The relation between body temperature, metabolic rate and climatic environment in young-growing pigs
A. J. McArthur and J. A. Clark	9	Body temperature of homeotherms and the conservation of energy and water
Kevin M. O'Neill and Ruth P. O'Neill	15	Thermal stress and microhabitat selection in territorial males of the digger wasp *Philanthus psyche* (Hymenoptera: Sphecidae)
F. Al-Hilli and E. A. Wright	21	The effects of environmental temperature on the hair coat of the mouse
J. R. Speakman	25	Position of the pinnae and thermoregulatory status in brown long-eared bats (*Plecotus auritus*)
J. Muthukrishnan, A. Palavesam and M. Senthamizhselvan	31	Effect of temperature on yolk utilization in *Kiefferulus barbitarsis* (Kieffer) (Chironomidae)
Jeffrey C. Payne and Robert E. Gatten Jr	37	Thermal acclimation of activity metabolism in desert lizards (*Urosaurus graciosus* and *U. ornatus*)
M. van Kampen	43	Effects of drinking water temperature and leg cooling on heat stress of laying hens (*Gallus domesticus*)
Announcement	i	

NUMBER 2

Andre Seidel, Gerhard Heldmaier and Franz Schulz	49	Effect of triiodothyronine, thyrotropin-releasing-hormone and propylthiouracil on the thermogenic capacities of Djungarian hamsters living in natural photoperiod
D. Sergent, P. Berbigier and J. P. Ravault	53	Effect of prolactin inhibition on thermophysiological parameters, water and feed intake of sun-exposed male Creole goats (*Capra hircus*) in Guadeloupe (French West Indies)
Michael C. J. Chang and Betty I. Roots	61	Influence of environmental temperature on the phospholipid composition of outer and inner mitochondrial membranes from goldfish (*Carassius auratus* L.) brain
Lou A. Stephenson, Margaret A. Kolka and Richard R. Gonzalez	67	Exercise after atropine and pralidoxime increases the rational effective temperature
E. Don Stevens	73	Acclimation temperature markedly alters the motivation to feed in the toad, *Bufo americanus*
D. B. Lindsay, M. J. Dauncey, P. J. Barker and D. L. Ingram	79	Protein synthesis and degradation after acclimation to different environmental temperatures and energy intakes
Roberto Refinetti	85	Magnitude estimation of warmth in children

Glenn E. Walsberg 89 Heat flow through avian plumages: the relative importance of conduction, convection, and radiation

Announcement i

NUMBER 3

Conrad B. Monson, John M. Horowitz and Barbara A. Horwitz 93 Core temperature is regulated, although at a lower temperature, in rats exposed to hypergravic fields

J. Scott Turner 103 Body size and thermal energetics: how should thermal conductance scale?

David Miller and Alexander G. McLennan 119 The heat shock response of the cryptobiotic brine shrimp *Artemia*—I. A comparison of the thermotolerance of cysts and larvae

David Miller and Alexander G. McLennan 125 The heat shock response of the cryptobiotic brine shrimp *Artemia*—II. Heat shock proteins

Carol A. Beuchat 135 Temperature effects during gestation in a viviparous lizard

Pirkko Huttunen, Barbara Kruk, Marja-Leena Kortelainen, Vuokko Kinnula and Jorma Hirvonen 143 Physical training at low temperature promotes metabolic adaptation to cold in the guinea-pig

M. Krishnan and S. Chockalingam 149 Influence of temperature on the bioenergetics of a tropical moth

NUMBER 4

N. Gelman, J. Machin and P. Kestler 157 The nature of driving forces for passive water transport through arthropod cuticle

Wayne A. Riddle and Victoria J. Miller 163 Cold-hardiness in several species of land snails

M. Harri and H. Korhonen 169 Thermoregulatory significance of basking behaviour in the raccoon dog (*Nyctereutes procyonoides*)

J. Attias, S. Gold, H. Sohmer, M. Schmuel, M. Horowitz and A. Shahar 175 Effects of long-term heat exposure on the auditory nerve-brainstem evoked responses

K. W. Chiu and N. Y. S. Woo 179 Metabolic effects of thyroid hormones at a low temperature in the snake

Janusz Jeniszewski, Urszula Kosecka-Janiszewska and Dietmar Otto 185 Changes in rate of abdominal ventilatory pumping induced by warming individual ganglia in the male cricket *Gryllus bimaculatus* (De Geer)

R. Francesconi, R. Hubbard, C. Matthew, M. Durkot, M. Bosselaers and N. Leva 189 Exercise in the heat: effects of dinitrophenol administration

F. Al-Hilli and E. A. Wright 197 The effects of environmental temperature on the body temperature and ear morphology of the mouse

Announcement i